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control – motion – interface

BT700

Touch-Screen HMI Terminal for Use with motrona Controllers

Operating Instructions

Safety Instructions

- This manual is an essential part of the unit and contains important hints about function, correct handling and commissioning. Non-observance can result in damage to the unit or the machine or even in injury to persons using the equipment!
- The unit must only be installed, connected and activated by a qualified electrician
- It is a must to observe all general and also all country-specific and application-specific safety standards
- When this unit is used with applications where failure or maloperation could cause damage to a machine or hazard to the operating staff, it is indispensable to meet effective precautions in order to avoid such consequences
- Regarding installation, wiring, environmental conditions, screening of cables and earthing, you must follow the general standards of industrial automation industry
- - Errors and omissions excepted –

This product is manufactured by

HITECH Electronics Corp.
- a Beijer Electronics Group company

and in this context intended for use as a
proved and recommended accessory part
with motrona motion control products

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1. PWS6600 Installation

1.1. Introduction

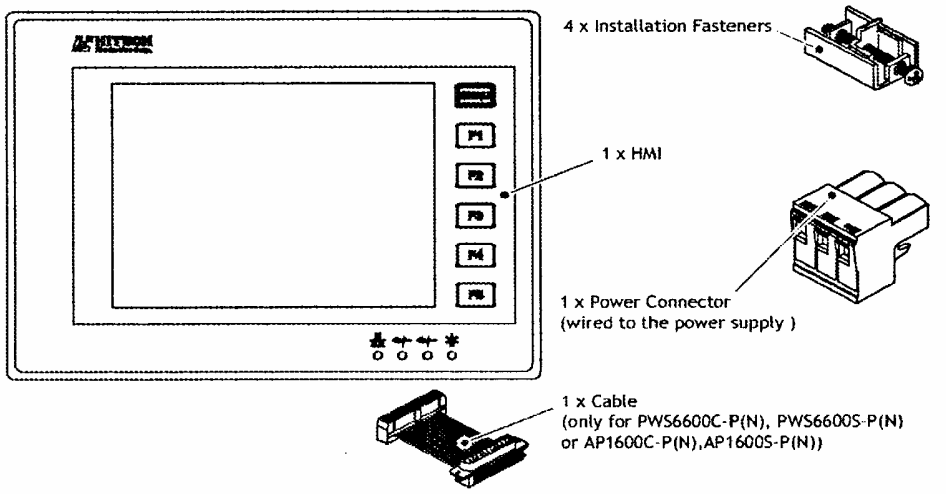
PWS6600 is a Human Machine Interface (HMI) with a 5.7" TFT Liquid Crystal Display, and is water- and dust-resistant according to IP65/NEMA4.
The HMI is CE-marked and meets your need to be highly transient-resistant while in operation.
Also, its compact design makes connections with other machinery more flexible, thus

- The supplier neither guarantees that the HMI is suitable for your particular application,
- nor assumes responsibility for your product design, installation or operation.

Power Source

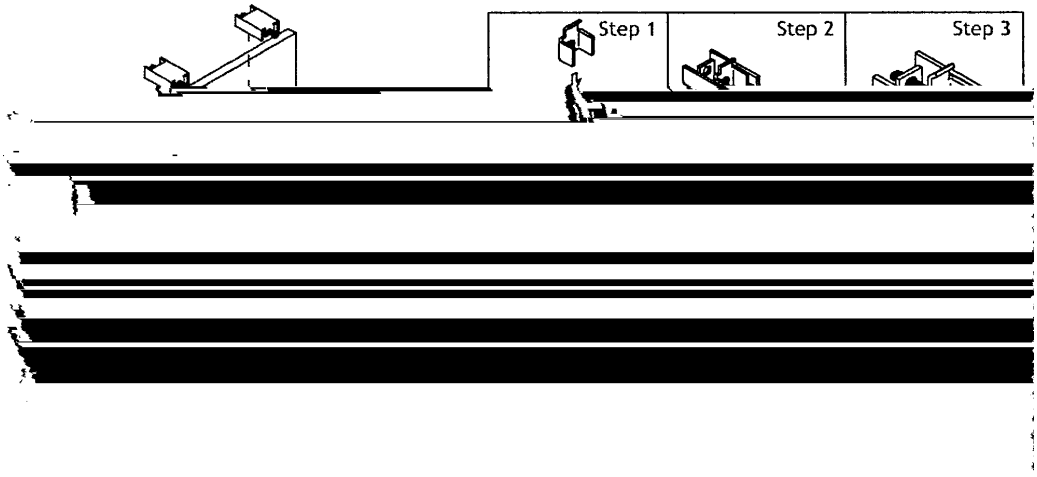
- The HMI is equipped with a 24 V DC input. Supply power other than 24 V DC ± 15% will severely damage the HMI. Thus, check the power supply supporting the DC power regularly.
-

1.4. Package Contents



1.5. Mounting Procedure

1. Cut out the control front panel to match the dimensions (mm) specified under the External and Cut-out dimensions chapter.
2. Mount the HMI into the cut-out. Insert the fixtures to the holes on the unit and fasten the screws into the front panel. Do not tighten the screws with too much or uneven force, or it may cause deformation of the HMI.



3. The HMI must be installed within an angle of 0° to 135° as shown above.

1.6. Grounding

Make sure that the HMI works properly. To prevent it from radiating radio frequency noise, the HMI must be connected to earth ground.

- Without grounding, the HMI may be severely affected by excess noise. Make sure that the grounding is done properly from the power connector at the rear side of the HMI. When power is connected, make sure that the wire is grounded.
- Use a cable of at least 2 mm^2 (AWG 14) to ground the HMI. Ground resistance must be less than 100 Ohms (class3). Note that the ground cable must not be connected to the same ground point as the power circuit.

1.7. Power Supply and Wiring

The HMI must use a power supply with 24 V DC and the power consumption is 20W.

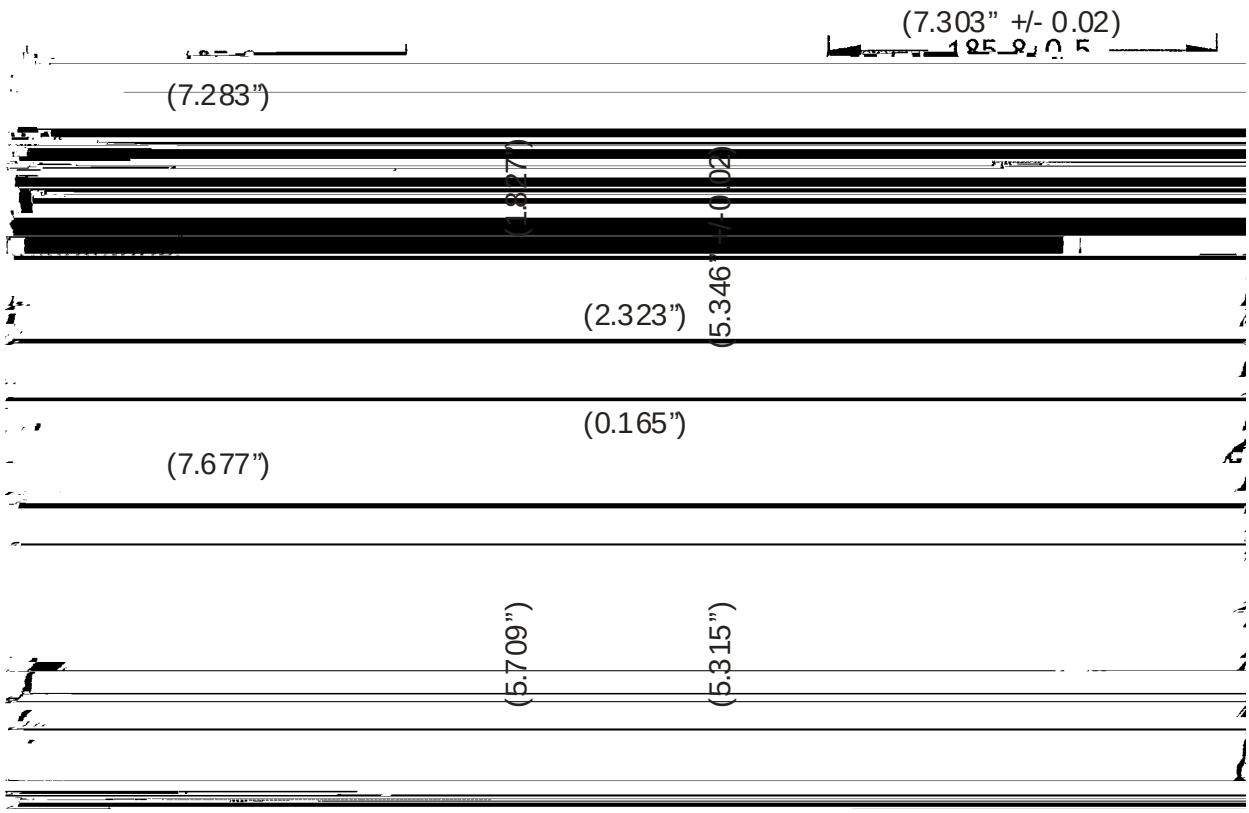
Warning:
To avoid an electric shock, be sure to switch off the power before connecting the communication/download cable to the HMI.

Steps to wire

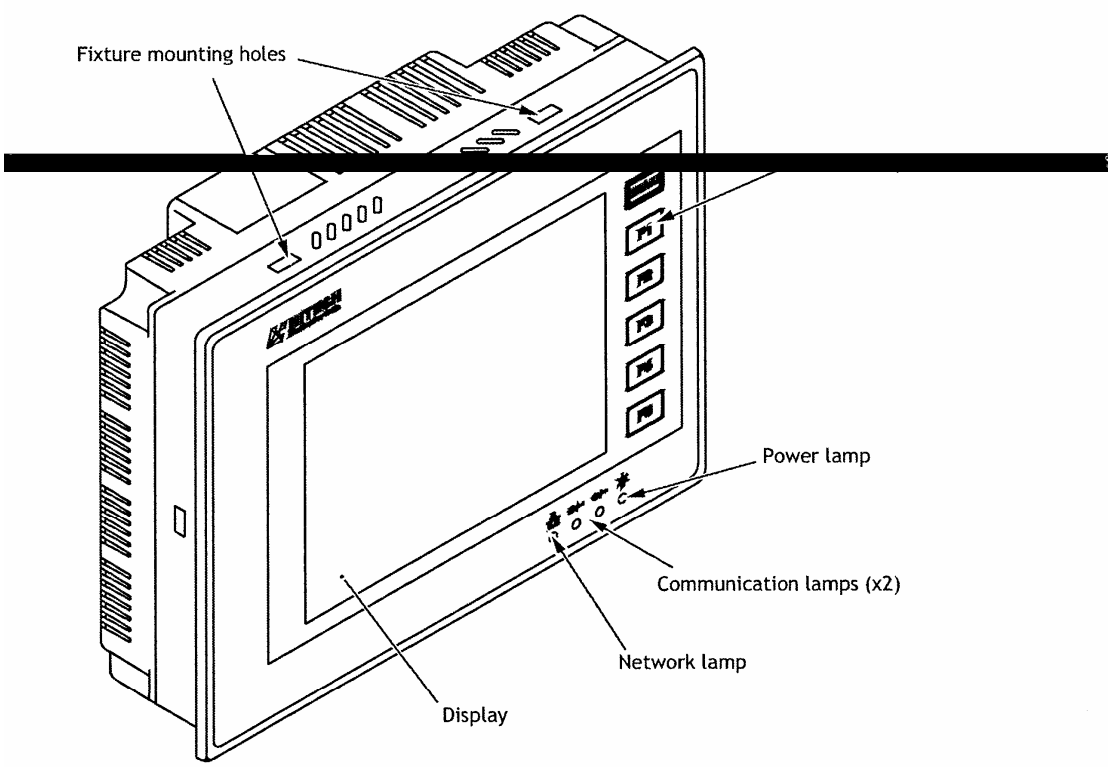
1. Unplug the power connector and unscrew the screws.
2. Strip about 1 cm of insulation. Insert the wire all the way into the power connector and then turn the screws tight.
3. Plug in the connector to the power outlet of the HMI.

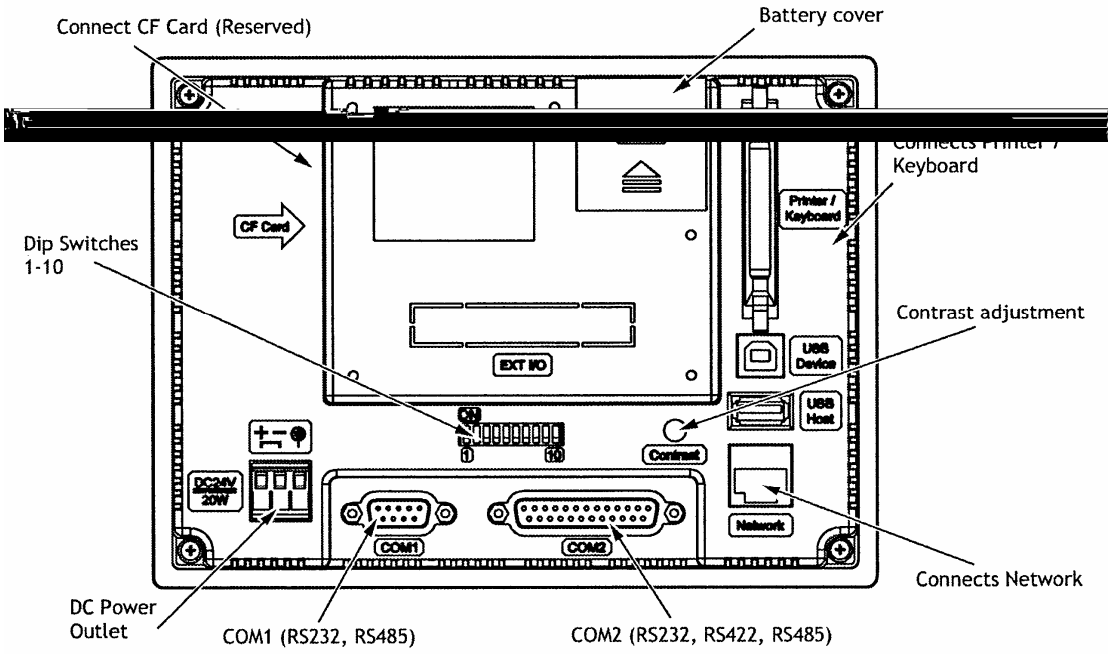
Note:
Power connector is already plugged in the power outlet of the HMI when the package is first opened.

1.8. External and Cut-out Dimensions



1.9. Description of Parts





1.10. Product Specifications

Item	PWS 6600C-N AP 1600C-N	PWS 6600C-P AP 1600C-P

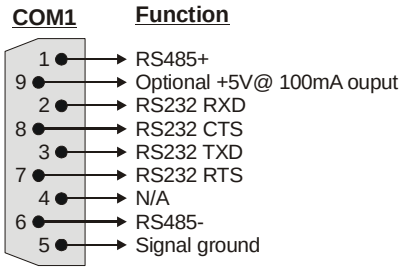
Item	PWS 6600C-N AP 1600C-N	PWS 6600C-P AP 1600C-P	PWS 6600C-S AP 1600C-S	PWS 6600S-P AP 1600S-N	PWS 6600S-P AP 1600S-P	PWS 6600S-S AP 1600S-S
Electrostatic discharge	IEC61000-4-2					
RF Susceptibility	IEC61000-4-3					
High Frequency Transients	IEC61000-4-4					
External dimensions	195.0 x 145.0 x 59.1 mm					
Cut-out dimensions	185.8 x 135.8 mm					
Weight	0.81 kg					
Cooling	Natural cooling					

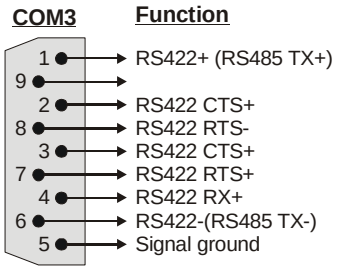
Note:
When using the HMI for the first time, remember to reset Real Time Clock (RTC).

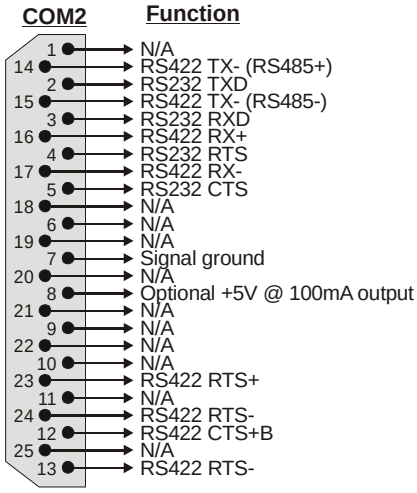
1.11. Communication Ports

- COM 1 is a 9-pin female connector used to connect a controller and the HMI via RS232 or RS485
- COM 2 is a 25-pin female connector used to connect a controller and the HMI via RS232, RS422 or RS485

Please make sure that the connection is in accordance with the setting of the dip switches. (For example, , RS485 with SW9 and SW10=ON).
For illustration on the connection between the HMI and a controller, please consult the information on the controller.







1.12. Dip Switches

Dip Switches		Function
SW 1		Reserved
SW 2		Reserved
SW 3	SW 4	Operation Mode
ON	ON	Runs user application
ON	OFF	Runs burn-in test program
OFF	ON	Updates BIOS
OFF	OFF	Runs bench test program
SW 5		Communication Parameters
ON		The HMI uses parameters defined on the Configuration Screen for controller communications
OFF		The HMI uses parameters defined in ADP for controller communications
SW 6		Password
ON		The HMI asks the operator to enter

2. PWS6600 Operation

2.1. Self Test

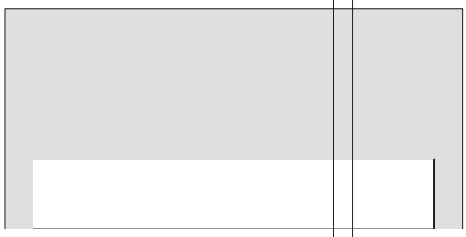
Once the HMI is turned on, it will automatically execute a self-test to check its hardware. The result of a self-test is displayed on the LCD. See below for items to check in a self-test:

Human Machine Interface ROM BIOS Version 1.6 (C) 2005 Hitech Beijer Electronics	
Display Type = Mono STN LCD	
System RAM Size	256K Bytes
Video RAM Size	256K Bytes
Battery Backed RAM Size	512K Bytes
Application Memory Size	4M Bytes
Working RAM Test	Passed
Battery Status	Passed
BIOS ROM Checksum	Passed
Firmware Checksum	Passed
Application Checksum	Passed
RTC Function Test	Passed
Parameter Checksum	Passed
Communication Port 1 Test	Passed
Communication Port 2 Test	Passed
DIP Switches Setting(8..1)=	11011111

If any of tests does not pass the self-test, it will be noted with "Failed" next to the test item. Additionally, the message "Error! Press screen to continue" will be displayed at the bottom of the screen.
If the power to the HMI or the PC was interrupted while downloading, Firmware checksum or Application checksum will not pass the self-test, indicated by "Failed" in the self-test results after power is restored. If this happens, the user can simply follow the download procedure to re-download the application or data. After downloading again, all items should pass the self-test.

2.2. System Menu

Set the dip switch SW7=ON. After the self-test, the system menu of the HMI is displayed on the screen:



2.4. Bench and Function Tests

Set the dip switches SW3 and SW4=OFF to be able to run the bench and function tests for the HMI. Turn on the HMI and the following screen will be displayed.

F1	F2
Bench Test	Function Test

The bench test performs an overall hardware test and the function test lets the user select which item to be tested.

Note:
The bench test will clear the application data of the HMI.

2.5. Setting Communication Parameters

There are two ways to configure working parameters; to set parameters in the HMI or in ADP.

To set parameters in the HMI, select F2 - Confg in the system menu.

Note:
Remember to set the dip switch SW5=ON if parameters are set in the HMI

To set parameters in ADP, select Application / Workstation Setup. Then select the Connection tab to set communication parameters.

Note:
Remember to set the dip switch SW5=OFF if parameters are set in ADP

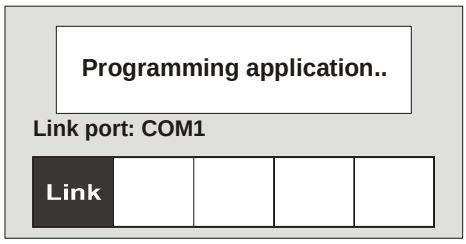
2.6. Downloading an Application

Connect the RS232 port on the PC to the COM1 port on the HMI using a WPCP8- 42 cable. The connection can also be made according to the illustration below.

PWS-COM1 9-pin male	PC COM RS232 9-pin female	PWS-COM2 25-pin male	PC COM RS232 9-pin female

Warning:
To avoid an electronic shock, be sure to switch off the power before connecting the download cable to the HMI.

Set the dip switch SW7 = ON. After the self-test, the system menu will be displayed on the screen and the HMI is ready to download the application.
Start ADP and open the application file to be downloaded. Make sure that the communication parameters are correctly configured. Also remember to compile the file before downloading it. The file has to be compiled every time a change has been made in the file before downloading it.
Then select Application/Download Firmware and then Application in ADP if it is a first time to download the application to the HMI; otherwise, select Application/Download Application. The following appears on the screen while the HMI is downloading:



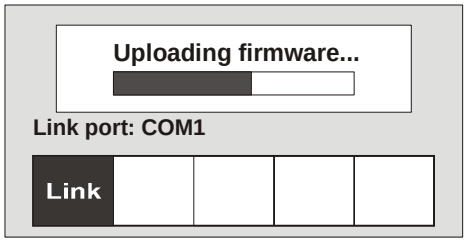
2.7. Uploading an Application

An application can also be uploaded from the HMI to the PC. Thus, a user can save an application as a *.V6F file in ADP for future use.

Warning:
To avoid an electric shock, be sure to switch off the power before connecting the communication cable to the HMI.

Make sure that the HMI and the PC are connected according to section “Downloading an Application”. Set the dip switch SW7 = ON. After the self-test, the system menu will be displayed on the screen and the HMI is ready to upload the application.
Also make sure that communication parameters are correctly configured. Select File/Upload Application in ADP and the Save As dialog box will appear on the screen. Enter the name of a firmware file (*.AF6) to save. Click Save. Then the HMI will prompt for a password: enter the password set in ADP from Application/Workstation Setup. Once the correct password is entered, the HMI starts to upload the application to the PC. For information about setting a password, please see section “Setting a Password“.

While the HMI is uploading, the following is displayed:



After uploading, select File/Reconstruct Source in ADP to display the Open dialog. Open the uploaded application file (*.C64 or *.AA6). The application screen will be displayed on the PC monitor. Finally, select File/Save As to save the application as a *.V6F file. Thus a source file can serve the purposes of maintenance and modification.

Note:
When using the HMI for the first time, reset the real time clock (RTC).

2.8. Uploading / Downloading a Recipe

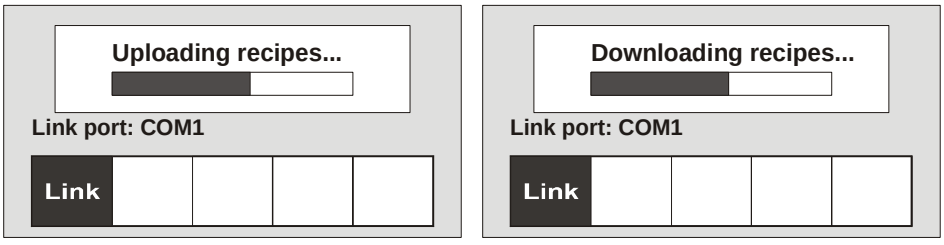
Set the dip switch SW7 = ON. After the self-test, the system menu will be displayed on the screen and the HMI is ready to upload/download a recipe.

Uploading a Recipe

Select File/Upload Recipes in ADP and the Save As dialog box will appear on the screen. Enter the name of a recipe file (*.RCP) to save. Click Save. While the HMI is uploading the recipe, Uploading recipes is displayed on the screen.

Downloading a Recipe

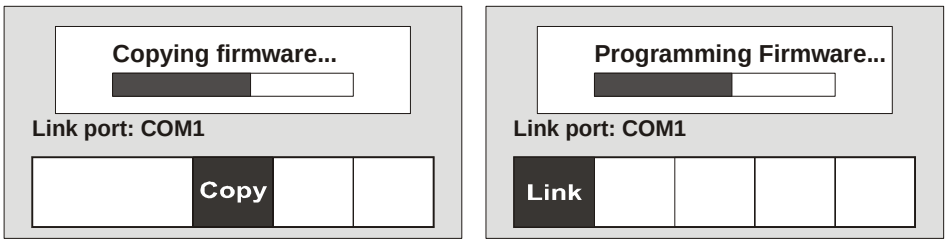
Open an application file with the recipe to be downloaded in ADP. Select File/Download Recipes to display the Open dialog. Enter the name of the recipe file (*.RCP) and click Open. While the HMI is downloading the recipe, Downloading recipes is displayed on the screen:



After the download is finished, select F5 - Run to run the application.
Remember to define the length and the number of recipes in the application. Also remember to upload the format of recipes from the HMI before starting to edit a new set of recipe data in the PC.
For further information about creating/editing recipes, please see the corresponding chapter in the ADP User's Manual.

2.9. Copying an Application

To copy an application from one HMI to another, select **F3 - Copy** from the system menu. Set the dip switch **SW7 = ON** and connect the two HMIs with a download cable. After the self-test, the system menu will be displayed on the screen.
Select **F3 - Copy** in the system menu from the HMI with **Application/Workstation** will prompt for a password: enter **Setup**. OnceTOc-correct password t to copy 0c-application on the screens during 0c-copying:

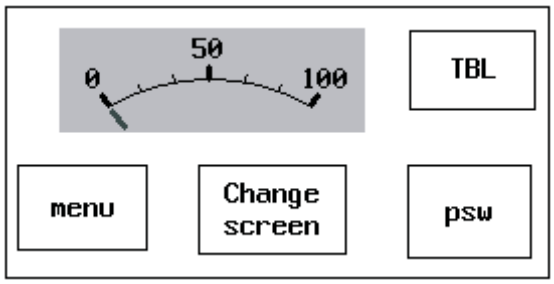


Note:
If it is the first time to copy, please remember to run the application.

2.10. Setting a Password

Scenario 1: Requiring a password to start the HMI

If the dip switch **SW6 = ON**, the user needs to enter a password to start the HMI.
For this purpose, the designer can use the object **Action Button** in ADP to create a button which displays the password table on the HMI display. A user with the right to access the table can register passwords and user levels in the table. In the illustration below, the TBL-button is an action button used to display the password table.
When the button is selected the password table is displayed on the screen for a user with the right to access the table. Touch the password to highlight an area for entering a value.



In the illustration above, the TBL-button is an action button used to display the password table. When the button is selected the password table is displayed on the screen for a user with the right to access the table. Touch the password to highlight an area for entering a value.

How to configure an **Action Button** is described in the ADP User's Manual.

After registering passwords and user levels, set the dip switch SW6 = ON (i.e. password required). Restart the HMI and after the self-test the user will be prompted to enter a password in order to run the HMI. The HMI will determine the user level from the entered password. For instance, if the level of the password entered by the user is 2, then t

Scenario 4: Requiring a password to copy or upload application

When selecting F3 - Copy in the system menu or File/Upload Application in ADP, the HMI will prompt for a password. The user will need to enter the correct password to copy an application from one HMI to another. Note that setting this password is different from the passwords set in Scenarios 1-3. To set this password, select Application/Workstation Setup in ADP. Under the Password tab, the project designer is able to set the password.

3. Screen Editor for PWS

The software ADP6 is available from the following websites.

- http://www.hitechsite.com
- http://www.hitechsite.com.tw